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Assessment of drought and its uncertainty in a southern Italy area (Calabria region)

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ABSTRACT

Drought is one of the most common natural events having a great negative impact on agriculture. The main objective of this study was to assess the drought severity and to map its spatial distribution and uncertainty in the Calabria region (southern Italy). The Reconnaissance Drought Index (RDI) was used to assess the drought severity whereas a geostatistical approach was used to map the spatial distribution of *RDI* and its uncertainty. Particularly, geostatistical stochastic simulation was used for assessing the uncertainty of RDI. Dry and wet areas of the study area were identified and higher uncertainty was found in the mountainous areas of center and north-western portions of the region. A strong relation between the average annual initial value of RDI and orography was detected: wet areas were located in the highest mountains while dry areas in the lowest and coastal areas. The results of this study could help decision-makers in planning management water programs.

Keywords: Drought, Reconnaissance drought index, geostatistics, turning bands stochastic simulation, Calabria

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